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C12Q 1/68, 1/70

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

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Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

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6 May 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: VAULT AND VAULT-LIKE CARRIER MOLECULES

(57) Abstract: A method of using vaults as carrier molecules to deliver one or more than one substance to an organism, or to a specific tissue or to specific cells, or to an environmental medium. A vault-like particle. A method of preventing damage by one or more than one substance to an organism, to a specific tissue, to specific cells, or to an environmental medium, by sequestering the one or more than one substance within a vault-like particle. A method of delivering one or more than one substance or a sensor to an organism, to a specific tissue, to specific cells, or to an environmental medium. According to another embodiment of the present invention, there is provided a method of making vault-like particles, and making vault-like particles comprising one or more than one substance, or one or more than one sensor.



WO 2004/081533 A3

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 14399-1PCT	FOR FURTHER ACTION <div style="display: flex; justify-content: space-between; font-size: small;"> see Form PCT/ISA/220 as well as, where applicable, item 5 below. </div>	
International application No. PCT/US04/07434	International filing date (<i>day/month/year</i>) 10 March 2004 (10.03.2004)	(Earliest) Priority Date (<i>day/month/year</i>) 10 March 2003 (10.03.2003)
Applicant REGENTS OF THE UNIVERSITY OF CALIFORNIA		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☒ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. ____

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/07434

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:

a. type of material

☒

a sequence listing

☐

table(s) related to the sequence listing

b. format of material

☒

in written format

☒

in computer readable form

c. time of filing/furnishing

☒

contained in the international application as filed

☒

filed together with the international application in computer readable form

☐

furnished subsequently to this Authority for the purposes of search

2. ☒ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/07434

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61K 38/16, 38/17; C12N 15/866, 15/63, 15/64, 5/10; C07K 14/435; C12Q 1/68, 1/70

US CL : 435/320.1, 455, 456, 69.1, 5, 6, 7.1; 514/2, 44; 530/350

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/320.1, 455, 456, 69.1, 5, 6, 7.1; 514/2, 44; 530/350

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SUPRENANT, K. A. Vault Ribonucleoprotein Particles: Sarcophagi, Gondolas, or Safety Deposit Boxes. Biochemistry. 10 December 2002, Vol. 41, No. 49, pages 14447-14454, especially pages 14449-14450.	6-8, 36-38
X	vanZon et al. Structural Domains of Vault Proteins: A Role for the Coiled Domain in Vault Assembly. Biochemical and Biophysical Research Communications. 2002, Vol. 291, No. 3, pages 535-541, especially pages 535 and 538.	6-8, 36-38
A,P	US 6,555,347 B1 (ROME et al.) 29 April 2003 (29.04.2003), column 1, lines 45-55, columns 2-3.	1-66
A,P	US 6,599,728 B2 (MORIN et al.) 29 July 2003 (29.07.2003), column 2, lines 25-61, column 4, lines 44-64.	1-66

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

07 February 2005 (07.02.2005)

Date of mailing of the international search report

01 MAR 2005

Name and mailing address of the ISA/US

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/07434

Continuation of B. FIELDS SEARCHED Item 3:

WEST, Dialog, Biotech, Medline, Biosis, Biosci

Search terms: vault, carriers, MVP, VPARP, TEP1, major vault protein, poly ADP-ribosyl polymerase, bacmid, baculovirus, SEQ ID
NO:3